

2021 East Pawnee Power Line Project – Scoping Responses/Comments

Scoping/Comment Period	2/6/2021 through 3/12/2021
Legal Notice Published	Fort Collins <i>Coloradoan</i> legal notices
Who organized	US Forest Service, Arapaho and Roosevelt NFs and Pawnee NG
Comments sent to	Curtis Youngman, District Ranger, Pawnee National Grassland, PO Box 386, Ault, CO 80610 comments-rocky-mountain-arapaho-roosevelt-pawnee@usda.gov

Response No. 1

Pawnee Nation

2/4/2021

Summary of expressed concern and any requests: Indicated the proximity of the Project to at least 3 ancestral Pawnee archaeological sites (within 16 miles) and "close" to numerous tipi rings, hunting sites and archaeological districts. Concern was expressed that this project could impact the cultural landscape of the Pawnee nation. The request was made for a pedestrian survey of the Area of Problematic Effect before project proceeds. Provided information regarding notification if undiscovered cultural properties are encountered.

Response Summary (how, what, section in EA): US Forest Service (USFS) will correspond with the Tribe.

Response No. 2

Cheyenne & Arapaho Tribes

2/5/2021

Summary of expressed concern and any requests: No concerns or adversity regarding the project was expressed but the request was made that all NAGPRA guidelines be adhered to. Additionally, request was made to contact the Tribes if anything comes up that will affect the Tribes.

Response Summary (how, what, section in EA): USFS will correspond with the Tribe.

Response No. 3

Arkansas Valley Audubon Society

2/16/2021

Summary of expressed concern and any requests: Concern was expressed about the cumulative impacts to raptors, golden eagle, red-tailed hawk, ferruginous hawk, northern Harrier, prairie falcon, and Swanson's hawk that winter and breed on Pawnee National Grassland. Concern was expressed regarding the continued development in this Important Bird Area. The request was made to equip the line with devices that birds can see in order to avoid power lines.

Response Summary (how, what, section in EA): The EA describes the existing human influences along the route for the proposed 115-kV transmission line. The EA presents an inventory of known raptor and eagle nest locations in within close proximity to proposed route. The EA presents an analysis of the potential risk for raptor and eagle electrocutions based on the proposed tower configurations that would be utilized for the proposed action alternative and the no action alternative. The EA identifies the segments of the proposed action alternative and no action alternative routes that have an increased potential for golden eagle collisions and identifies mitigation measures to mark the transmission line to reduce the collision risk. The EA discusses the

use of bird diverters on the transmission line that crosses or is adjacent to the Pawnee National Grassland. The EA discusses the limited amount of shortgrass prairie that would be permanently lost due to the construction of the proposed action.

Response No. 4

Individual

2/19/2021

Summary of expressed concern and any requests: Friends of the Pawnee Grassland expressed concern about the need for more protection and conservation for grassland birds. They specifically urge the USFS to protect our birds-especially our raptors – from electrocution and collision consequences of power line construction.

They recommend the consideration of the following remedies:

- Consider alternative transport or location of power line construction – away from migratory flyway and off federal land
- Safety measures
 - Follow best practices of power line construction methods (chapter 5) to reduce wildlife risks (<https://www.nrc.gov/docs/ML1224/ML12243A391.pdf>)
 - Flappers and Static Diverters use (<https://balmoralengineering.com/raptor-protection-on-powerlines/>)
 - Avian-friendly safety measures (<https://www.eagles.org/take-action/avian-friendly-power-lines/>)
 - “Bird Strikes And Electrocutions At Power Lines, Communication Towers, And Wind Turbines: State Of The Art And State Of The Science Next Steps Toward Mitigation” (<https://www.fws.gov/midwest/wind/references/ManvilleBirdMortality.pdf>)
 - Suggested Practices for Raptor Protection on Power Lines (https://www.raptorresearchfoundation.org/files/2016/05/RRR4_1981_Suggested_Practices_For_Raptor_Protection_on_Power_Lines.pdf)
 - Bird Flight Diverter (<https://www.powerlinesentry.com/>)
 - Raptor Protector (<https://preformed.com/energy/distribution/wildlife-protection/raptor-protector>)

Response Summary (how, what, section in EA): The EA discusses the limited amount of shortgrass prairie that would be permanently lost due to the construction of the proposed action. The EA describes the existing human influences along the route for the proposed 115-kV transmission line. The EA presents an inventory of known raptor and eagle nest locations in within close proximity to proposed route. The EA presents an analysis of the potential risk for raptor and eagle electrocutions based on the proposed tower configurations that would be utilized for the proposed action alternative and the no action alternative. The EA identifies the segments of the proposed action alternative and no action alternative routes that have an increased potential for golden eagle collisions and identifies mitigation measures to mark the transmission line to reduce the collision risk. The EA discusses the use of bird diverters on the transmission line that crosses or is adjacent to the Pawnee National Grassland.

The USFS considered another alternative route, but eliminated it from further consideration based on (a) the increased overall length of the transmission line (from 8 miles for the proposed action to 14 miles for the potential alternative route) that increase the risk of collision and electrocution, and

(b) the same amount of impact to shortgrass prairie as the proposed action. Details of the alternative route and the potential impacts are presented in the EA. Weld County, Colorado is entirely within the Central Flyway and therefore cannot be avoided. The no action alternative analyzed in the EA includes a 14-mile route that would be built if the ROW is not granted and it is located entirely on private land avoiding the PNG.

The references provided were reviewed with the following findings:

(1) Best Practices of power line construction methods (Chap 5 NRC document)

Response: This citation was not found online. Note that the risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk and electrocution risk for 115kV transmission (not typically an issue for this voltage) per APLIC (2006, 2012), which would be associated with project operation. Power line construction would not result in electrocution or collision risks and would involve assessing potential effects to habitats and bird behavior (e.g., displacement; see EA analysis).

(2) Flappers and Static Diverters (Balmoral Engineering – Australia)

Response: The risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk with the overhead shield wire. Citing APLIC (2012) and WEST's expertise in overhead line collision risk to birds, suggested marking of specific line segments to reduce collision risk during line operation was developed as part of this analysis. However, the commenter references bird flight diverters made in Australia that have moving swivels and clamps, which can fail in high-wind conditions and abrade the conductor material, respectively. WEST's analysis recommended suggested a line marking device, designed specifically to reduce bird collision risk using US-made Power Line Sentry's Bird Flight Diverter (BFD; <http://www.powerlinesentry.com/flight-diverters.html>), which increases the line profile and visibility to birds while avoiding operational issues and device failures, based on the unit design.

(3) Avian-friendly safety measures

Response: This reference page for the American Eagle Foundation is no longer active. If referencing bird-friendly design, the risk assessment addresses structure design for potential eagle (or other large bird) electrocution risk as well as line placement relative to avian collision risks during operation. Potential risks to birds during line construction is based on habitat effects or potential bird displacement, which is addressed in the EA.

(4) "Bird Strikes and Electrocutions at Power Lines, Communication Towers, and Wind Turbines: State of the Art and State of the Science - Next Steps Toward Mitigation"

Response: We are very familiar with Dr. Manville's work and 2005 compendium of bird impacts from power infrastructure and communication towers. The risk assessment completed for the 115kV transmission line addresses these issues summarized by Manville (2005) as well as those outlined by the Avian Power Line Interaction Committee (APLIC 2006, 2012) and the US Fish and Wildlife Service (USFWS), a member of APLIC.

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, California.

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

(5) Suggested Practices for Raptor Protection on Power Lines (1981)

Response: The risk assessment for both bird electrocution and collision incorporated APLIC's suggested practices, using the most recent sources (2006, 2012) for electrocution and collision risk, respectively. The 1981 source cited was a previous edition from the Raptor Research Foundation and the Edison Electric Institute, which was the precursor to APLIC's subsequent editions, including the 1994 and 1996 editions. APLIC's updated 2006 Suggested Practices will be forthcoming in 2021 or 2022.

(6) Bird Flight Diverter citing Power Line Sentry and Preformed Bird Flight Diversers

Response: The products and manufacturers cited in this comment are reputable vendors for bird flight diversers to increase overhead line visibility and reduce avian collision risk. Please see Response #2 above regarding the reference to Power Line Sentry's Bird Flight Diverter for specific line segments identified during the power line risk assessment for the 115kV transmission line.

Response No. 5

Evergreen Audubon Society

2/22/2021

Summary of expressed concern and any requests: Concern was expressed that the Purpose of the Pawnee National Grasslands is to preserve the very limited amount of shortgrass prairie that remains in the central plains, not to use it as a place to dump infrastructure that others don't want in their front yards. Concern was stated that additional power lines on the Pawnee will likely increase the number of raptor deaths. It was asked that other locations be examined, but if the Pawnee National Grasslands are used that the power lines be located away from flyways and be equipped with devices that birds will see and hopefully avoid. Consider in the evaluation that we have lost the vast majority of our shortgrass prairie and that loss leads to the decline of species that depend on the prairie grasslands to existing and to thrive. The commenter specifically urged the USFS to protect our birds-especially our raptors – from electrocution and collision consequences of power line construction.

The commenter recommends the consideration of the following remedies:

- Consider alternative transport or location of power line construction – away from migratory flyway and off federal land
- Safety measures
 - Follow best practices of power line construction methods (chapter 5) to reduce wildlife risks (<https://www.nrc.gov/docs/ML1224/ML12243A391.pdf>)
 - Flappers and Static Diversers use (<https://balmoralengineering.com/raptor-protection-on-powerlines/>)
 - Avian-friendly safety measures (<https://www.eagles.org/take-action/avian-friendly-power-lines/>)
 - “Bird Strikes And Electrocutions At Power Lines, Communication Towers, And Wind Turbines: State Of The Art And State Of The Science Next Steps Toward Mitigation” (<https://www.fws.gov/midwest/wind/references/ManvilleBirdMortality.pdf>)

- Suggested Practices for Raptor Protection on Power Lines (https://www.raptorresearchfoundation.org/files/2016/05/RRR4_1981_Suggested_Practices_For_Raptor_Protection_on_Power_Lines.pdf)
- Bird Flight Diverter (<https://www.powerlinesentry.com/>)
- Raptor Protector (<https://preformed.com/energy/distribution/wildlife-protection/raptor-protector>)

Response Summary (how, what, section in EA): The EA discusses the limited amount of shortgrass prairie that would be permanently lost due to the construction of the proposed action. The EA describes the existing human influences along the route for the proposed 115-kV transmission line. The EA presents an inventory of known raptor and eagle nest locations in within close proximity to proposed route. The EA presents an analysis of the potential risk for raptor and eagle electrocutions based on the proposed tower configurations that would be utilized for the proposed action alternative and the no action alternative. The EA identifies the segments of the proposed action alternative and no action alternative routes that have an increased potential for golden eagle collisions and identifies mitigation measures to mark the transmission line to reduce the collision risk. The EA discusses the use of bird diverters on the transmission line that crosses or is adjacent to the Pawnee National Grassland.

The USFS considered another alternative route, but eliminated it from further consideration based on (a) the increased overall length of the transmission line (from 8 miles for the proposed action to 14 miles for the potential alternative route) that increase the risk of collision and electrocution, and (b) the same amount of impact to shortgrass prairie as the proposed action. Details of the alternative route and the potential impacts are presented in the EA. Weld County, Colorado is entirely within the Central Flyway and therefore cannot be avoided. The no action alternative analyzed in the EA includes a 14-mile route that would be built if the ROW is not granted and it is located entirely on private land avoiding the PNG.

The references provided were reviewed with the following findings:

(1) Best Practices of power line construction methods (Chap 5 NRC document)

Response: This citation was not found online. Note that the risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk and electrocution risk for 115kV transmission (not typically an issue for this voltage) per APLIC (2006, 2012), which would be associated with project operation. Power line construction would not result in electrocution or collision risks and would involve assessing potential effects to habitats and bird behavior (e.g., displacement; see EA analysis).

(2) Flappers and Static Diverters (Balmoral Engineering – Australia)

Response: The risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk with the overhead shield wire. Citing APLIC (2012) and WEST's expertise in overhead line collision risk to birds, suggested marking of specific line segments to reduce collision risk during line operation was developed as part of this analysis. However, the commenter references bird flight diverters made in Australia that have moving swivels and clamps, which can fail in high-wind conditions and abrade the conductor material, respectively. WEST's analysis recommended suggested a line marking device, designed specifically to reduce bird collision risk using US-made

Power Line Sentry's Bird Flight Diverter (BFD; <http://www.powerlinesentry.com/flight-diverters.html>), which increases the line profile and visibility to birds while avoiding operational issues and device failures, based on the unit design.

(3) Avian-friendly safety measures

Response: This reference page for the American Eagle Foundation is no longer active. If referencing bird-friendly design, the risk assessment addresses structure design for potential eagle (or other large bird) electrocution risk as well as line placement relative to avian collision risks during operation. Potential risks to birds during line construction is based on habitat effects or potential bird displacement, which is addressed in the EA.

(4) "Bird Strikes and Electrocutions at Power Lines, Communication Towers, and Wind Turbines: State of the Art and State of the Science - Next Steps Toward Mitigation"

Response: We are very familiar with Dr. Manville's work and 2005 compendium of bird impacts from power infrastructure and communication towers. The risk assessment completed for the 115kV transmission line addresses these issues summarized by Manville (2005) as well as those outlined by the Avian Power Line Interaction Committee (APLIC 2006, 2012) and the US Fish and Wildlife Service (USFWS), a member of APLIC.

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Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

(5) Suggested Practices for Raptor Protection on Power Lines (1981)

Response: The risk assessment for both bird electrocution and collision incorporated APLIC's suggested practices, using the most recent sources (2006, 2012) for electrocution and collision risk, respectively. The 1981 source cited was a previous edition from the Raptor Research Foundation and the Edison Electric Institute, which was the precursor to APLIC's subsequent editions, including the 1994 and 1996 editions. APLIC's updated 2006 Suggested Practices will be forthcoming in 2021 or 2022.

(6) Bird Flight Diverter citing Power Line Sentry and Preformed Bird Flight Diverters

Response: The products and manufacturers cited in this comment are reputable vendors for bird flight diverters to increase overhead line visibility and reduce avian collision risk. Please see Response #2 above regarding the reference to Power Line Sentry's Bird Flight Diverter for specific line segments identified during the power line risk assessment for the 115kV transmission line.

Response No. 6

Denver Audubon

3/1/2021

Summary of expressed concern and any requests: Request was made to conduct a comprehensive analysis to meet the mission of the USFS: sustaining the health, diversity, and productivity of the Nation's forests and grasslands. Concern was expressed regarding the power line causing an increase in the number of avian collisions, particularly to species in the shortgrass prairie.

Presented information on the status and threats to the shortgrass prairie and various species of concern but did not state specifically a concern or request.

Denver Audubon recommends the USFS consider the following alternatives for the East Pawnee Power Line:

- Alternative transport or location of power line construction, away from the migratory flyway and off Federal land
- Bury the line. This will avoid bird collisions and better protect the line from extreme weather.
- Combine the power line corridor with CR 125 as much as possible, to consolidate surface disturbance to the shortgrass prairie
- Require best management practices and avian-friendly safety measure to eliminate, avoid, and reduce any bird collisions with the line, for example measures described in the US Fish and Wildlife publications (<http://www.fws.gov/Midwest/wind/references/ManvilleBirdMortality.pdf>) and in Raptor Research Foundation publications.

Response Summary (how, what, section in EA): The EA discusses the limited amount of shortgrass prairie that would be permanently lost due to the construction of the proposed action. The EA describes the existing human influences along the route for the proposed 115-kV transmission line. The EA presents an inventory of known raptor and eagle nest locations in within close proximity to proposed route. The EA presents an analysis of the potential risk for raptor and eagle electrocutions based on the proposed tower configurations that would be utilized for the proposed action alternative and the no action alternative. The EA identifies the segments of the proposed action alternative and no action alternative routes that have an increased potential for golden eagle collisions and identifies mitigation measures to mark the transmission line to reduce the collision risk. The EA discusses the use of bird diverters on the transmission line that crosses or is adjacent to the Pawnee National Grassland.

The USFS considered another alternative route, but eliminated it from further consideration based on (a) the increased overall length of the transmission line (from 8 miles for the proposed action to 14 miles for the potential alternative route) that increase the risk of collision and electrocution, and (b) the same amount of impact to shortgrass prairie as the proposed action. Details of the alternative route and the potential impacts are presented in the EA. Weld County, Colorado is entirely within the Central Flyway and therefore cannot be avoided. The no action alternative analyzed in the EA includes a 14-mile route that would be built if the ROW is not granted and it is located entirely on private land avoiding the PNG.

The references provided were reviewed with the following findings:

(1) Best Practices of power line construction methods (Chap 5 NRC document)

Response: This citation was not found online. Note that the risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk and electrocution risk for 115kV transmission (not typically an issue for this voltage) per APLIC (2006, 2012), which would be associated with project operation. Power line construction would not result in electrocution or collision risks and would involve assessing potential effects to habitats and bird behavior (e.g., displacement; see EA analysis).

(2) Flappers and Static Diverters (Balmoral Engineering – Australia)

Response: The risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk with the overhead shield wire. Citing APLIC (2012) and WEST's expertise in overhead line collision risk to birds, suggested marking of specific line segments to reduce collision risk during line operation was developed as part of this analysis. However, the commenter references bird flight diverters made in Australia that have moving swivels and clamps, which can fail in high-wind conditions and abrade the conductor material, respectively. WEST's analysis recommended suggested a line marking device, designed specifically to reduce bird collision risk using US-made Power Line Sentry's Bird Flight Diverter (BFD; <http://www.powerlinesentry.com/fly-flight-diverters.html>), which increases the line profile and visibility to birds while avoiding operational issues and device failures, based on the unit design.

(3) Avian-friendly safety measures

Response: This reference page for the American Eagle Foundation is no longer active. If referencing bird-friendly design, the risk assessment addresses structure design for potential eagle (or other large bird) electrocution risk as well as line placement relative to avian collision risks during operation. Potential risks to birds during line construction is based on habitat effects or potential bird displacement, which is addressed in the EA.

(4) "Bird Strikes and Electrocutions at Power Lines, Communication Towers, and Wind Turbines: State of the Art and State of the Science - Next Steps Toward Mitigation"

Response: We are very familiar with Dr. Manville's work and 2005 compendium of bird impacts from power infrastructure and communication towers. The risk assessment completed for the 115kV transmission line addresses these issues summarized by Manville (2005) as well as those outlined by the Avian Power Line Interaction Committee (APLIC 2006, 2012) and the US Fish and Wildlife Service (USFWS), a member of APLIC.

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(6) Bird Flight Diverter citing Power Line Sentry and Preformed Bird Flight Diverters

Response: The products and manufacturers cited in this comment are reputable vendors for bird flight diverters to increase overhead line visibility and reduce avian collision risk. Please see

Response #2 above regarding the reference to Power Line Sentry's Bird Flight Diverter for specific line segments identified during the power line risk assessment for the 115kV transmission line.

Response No. 7

Fort Collins Audubon Society

3/3/2021

Summary of expressed concern and any requests: This letter mainly presented ecological information on the status of the shortgrass prairie, wildlife and bird species of concern. They presented stats on bird collisions/electrocutions and discussed that power lines greatly disturbed and destroy habitats of threatened species.

No actual concern was directly expressed (e.g., we are concerned the power line will cause bird collisions/electrocutions), or requests made, rather "recommendations" were provided:

- Constructing the power line in a different location removed from Federal land and important migratory pathways.
- Taking adequate safety measures to prevent harm. These practices include marking lines with bright or reflective features, removing shield wires, changing the size of configuration of wires, burying lines, and other modifications. Many of these recommendations for best practices are detailed in documents provided by the Avian Power Line Interaction Committee (<https://www.aplic.org/mission>).
- If the USFS chooses to go forward with the construction of this power line in Pawnee National Grassland or any other vulnerable location, we ask them to frequently monitor, evaluate, and adaptively manage the impacted area to mitigate harm and rapidly address any ecological problems that arise.

Response Summary (how, what, section in EA): The references provided were reviewed with the following findings:

(1) Best Practices of power line construction methods (Chap 5 NRC document)

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(6) Bird Flight Diverter citing Power Line Sentry and Preformed Bird Flight Diversers

Response: The products and manufacturers cited in this comment are reputable vendors for bird flight diversers to increase overhead line visibility and reduce avian collision risk. Please see Response #2 above regarding the reference to Power Line Sentry’s Bird Flight Diverter for specific line segments identified during the power line risk assessment for the 115kV transmission line.

Response No. 8

Individual

3/3/2021

Summary of expressed concern and any requests: Requests consideration of placing power line closer to existing roadway and underground. Commented that underground placement creates less hazards for birds. Also commented that the swath for an overhead line creates more impact. Requests that fencing around the line not be built as this creates obstacles for wildlife to move back and forth over the area.

Response Summary (how, what, section in EA): The USFS considered burying the power line and an alternative route that followed County Road 125. Burying the line was eliminated from further

analysis due to the greater impacts. The USFS considered another alternative route, but eliminated it from further consideration based on (a) the increased overall length of the transmission line (from 8 miles for the proposed action to 14 miles for the potential alternative route) that increase the risk of collision and electrocution, and (b) the same amount of impact to shortgrass prairie as the proposed action. Details of the alternative route and the potential impacts are presented in the EA. Weld County, Colorado is entirely within the Central Flyway and therefore cannot be avoided. The no action alternative analyzed in the EA includes a 14-mile route that would be built if the ROW is not granted and it is located entirely on private land avoiding the PNG. Details of these alternatives and the potential impacts are presented in the EA. The EA states that no fencing is necessary for the proposed action thus no barrier to wildlife movements will occur.

Response No. 9

Northern Cheyenne Tribe

3/4/2021

Summary of expressed concern and any requests: Requests a copy of any Class I file search and/or Class III survey reports for further review of potential impacts this project may have on resources of significance to the Northern Cheyenne Tribe.

Response Summary (how, what, section in EA): USFS will correspond with the Tribe.

Response No. 10

Individual

3/5/2021 & 3/6/2021

Summary of expressed concern and any requests: Commenter was confused about the announcement as it referenced one mile of construction while the attached map showed the entire route. Asked about the current planned route for the transmission line and why it can't be built adjacent to Weld County Rd (WCR) 125, where disturbance already exists. Concerned that digging up virgin prairie is unnecessary destruction to a vulnerable ecosystem. Requests reason/explanation for the route choice over WCR 125.

Provided several links and sources of information for best management practices to reduce wildlife risks (avian). Sources included:

- Best practices of power line construction methods (chapter 5) to reduce wildlife risks (<https://www.nrc.gov/docs/ML1224/ML12243A391.pdf>)
- Flappers and Static Diverters use (<https://balmoralengineering.com/raptor-protection-on-powerlines/>)
- Avian-friendly safety measures (<https://www.eagles.org/take-action/avian-friendly-power-lines/>)
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- Suggested Practices for Raptor Protection on Power Lines (https://www.raptorresearchfoundation.org/files/2016/05/RRR4_1981_Suggested_Practices_For_Raptor_Protection_on_Power_Lines.pdf)
- Bird Flight Diverter (<https://www.powerlinesentry.com/>)
- Raptor Protector (<https://preformed.com/energy/distribution/wildlife-protection/raptor-protector>)

The EA clarifies that the proposed action is the entire 8-mile route, however only one mile crosses the Pawnee National Grassland. The USFS considered another alternative route, but eliminated it from further consideration based on (a) the increased overall length of the transmission line (from 8 miles for the proposed action to 14 miles for the potential alternative route) that increase the risk of collision and electrocution, and (b) the same amount of impact to shortgrass prairie as the proposed action. Details of the alternative route and the potential impacts are presented in the EA. Weld County, Colorado is entirely within the Central Flyway and therefore cannot be avoided. The no action alternative analyzed in the EA includes a 14-mile route that would be built if the ROW is not granted and it is located entirely on private land avoiding the PNG.

The references provided were reviewed with the following findings:

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Response: This citation was not found online. Note that the risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk and electrocution risk for 115kV transmission (not typically an issue for this voltage) per APLIC (2006, 2012), which would be associated with project operation. Power line construction would not result in electrocution or collision risks and would involve assessing potential effects to habitats and bird behavior (e.g., displacement; see EA analysis).

(2) Flappers and Static Diverters (Balmoral Engineering – Australia)

Response: The risk assessment for the Panorama 115kV transmission line addresses potential avian collision risk with the overhead shield wire. Citing APLIC (2012) and WEST's expertise in overhead line collision risk to birds, suggested marking of specific line segments to reduce collision risk during line operation was developed as part of this analysis. However, the commenter references bird flight diverters made in Australia that have moving swivels and clamps, which can fail in high-wind conditions and abrade the conductor material, respectively. WEST's analysis recommended suggested a line marking device, designed specifically to reduce bird collision risk using US-made Power Line Sentry's Bird Flight Diverter (BFD; <http://www.powerlinesentry.com/fly-flight-diverters.html>), which increases the line profile and visibility to birds while avoiding operational issues and device failures, based on the unit design.

(3) Avian-friendly safety measures

Response: This reference page for the American Eagle Foundation is no longer active. If referencing bird-friendly design, the risk assessment addresses structure design for potential eagle (or other large bird) electrocution risk as well as line placement relative to avian collision risks during operation. Potential risks to birds during line construction is based on habitat effects or potential bird displacement, which is addressed in the EA.

(4) "Bird Strikes and Electrocutions at Power Lines, Communication Towers, and Wind Turbines: State of the Art and State of the Science - Next Steps Toward Mitigation"

Response: We are very familiar with Dr. Manville's work and 2005 compendium of bird impacts from power infrastructure and communication towers. The risk assessment completed for the 115kV transmission line addresses these issues summarized by Manville (2005) as well as those outlined by the Avian Power Line Interaction Committee (APLIC 2006, 2012) and the US Fish and Wildlife Service (USFWS), a member of APLIC.

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, California.

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

(5) Suggested Practices for Raptor Protection on Power Lines (1981)

Response: The risk assessment for both bird electrocution and collision incorporated APLIC's suggested practices, using the most recent sources (2006, 2012) for electrocution and collision risk, respectively. The 1981 source cited was a previous edition from the Raptor Research Foundation and the Edison Electric Institute, which was the precursor to APLIC's subsequent editions, including the 1994 and 1996 editions. APLIC's updated 2006 Suggested Practices will be forthcoming in 2021 or 2022.

(6) Bird Flight Diverter citing Power Line Sentry and Preformed Bird Flight Diversers

Response: The products and manufacturers cited in this comment are reputable vendors for bird flight diversers to increase overhead line visibility and reduce avian collision risk. Please see Response #2 above regarding the reference to Power Line Sentry's Bird Flight Diverter for specific line segments identified during the power line risk assessment for the 115kV transmission line.

Response No. 11

Denver Audubon

3/7/2021

Summary of expressed concern and any requests: Additional email indicating eBird data has 197 species there suggesting this indicates more urgency to making the power line as safe as possible of birds if it is built out.

Response Summary (how, what, section in EA): Data from eBird was included in the EA. The EA presents an analysis for electrocution and collision risks. Mitigation measures were identified for segments with increased risk potential for collisions. The EA discusses the use of bird diversers on the transmission line that crosses or is adjacent to the Pawnee National Grassland.